

REMARKS/ARGUMENTS

This paper is responsive to the Non-Final Office Action mailed on January 25, 2008, in the above captioned application. In response to the Office Action, claims 1 and 49 have been amended. Claims 1, 4, 6, 16, 17, 21-24, 27-29, 31-34, 37, 39, 43, 49, 52, 53, 57, 58, 63 and 66-68 are pending in the application.

Support for the language that has been added to claims 1 and 49 may be found, for example, on page 26, lines 11-16, of the specification. No new matter has been added.

Interview on February 14, 2008

Applicant thanks the Examiner for his willingness to conduct an interview with the undersigned attorney and also for his comments concerning proposed amendments to the pending claims, which are presented above.

Rejections Under 35 U.S.C. § 103

Claims 1, 4, 16, 17, 21-24, 27-29, 31, 32, 37, 39, 43, 49, 52, 53, and 66-67 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash (U.S. Publication No. 2001/0020229) in view of Illif (US Published Application 2004/0199332) and further in view of Martin (U.S. Patent Application Publication 2002/0004725).

However, with reference to amended claim 1, the asserted combination of references fails to teach or suggest the claimed method in which all of the following occurs as recited in amended claim 1:

- a plurality of disease categories representing a plurality of health conditions or diseases are stored;
- category weight data is stored, wherein the category weight data comprises a weight value associated with each stored disease category, wherein each weight value associated with a stored disease category represents an average incremental cost for a plan member

associated with the presence of the associated stored disease category during the base period;

- for each of the plurality of health plan members, each stored disease category present in the plurality of provider claims for the member is identified;
- a burden of illness score is calculated for each member, wherein the burden of illness score is a number calculated by summing the stored weight values associated with each disease category identified in the member's provider claims;
- at least one explanatory value derived from demographic data or prior healthcare utilization data associated with the member is stored; and
- a utilization score is computed for each health plan member as a function of the burden of illness score and the at least one explanatory variable, wherein the utilization score is computed by assigning a weight factor to the burden of illness score and to the explanatory variable and summing (a) the product of the burden of illness score and its assigned weight factor and (b) the product of the explanatory variable and its assigned weight factor.

The combination of Lash, Illif and Martin does not teach or suggest all features of the method recited in amended claim 1. Specifically, none of these references discloses storing of category weight data including weight values for each stored disease category, wherein the weight values represent the average incremental cost for a plan member associated with the presence of the disease category during the base period. Also, neither reference discloses or suggests the calculation of a burden of illness score that is the sum of the weight values associated with the disease categories identified in the provider claims of each plan member. Finally, neither reference discloses the summing of a weighted burden of illness score and a weighted explanatory variable to calculate a utilization score as recited in amended claim 1.

In particular, Lash does not teach or suggest the storing of category weight data associated with a plurality of stored disease categories, wherein the category weight data includes weight values for each disease category that represent the average incremental cost for a

plan member associated with the presence of the disease category during the base period. In Lash, there are no comparative weight values of for a plurality of disease conditions because the risk analysis is only performed for one disease condition at a time. See Lash at ¶ 37.

Moreover, Lash does not teach or suggest the process of identifying each stored disease category present in each member's provider claims or calculating a burden of illness score by adding the weight values of each identified disease category in the member's provide claims. Lash determines risk for patients having one disease category, which is in contrast to the present invention that provides a utilization score calculation method that takes into account the interactions of a plurality of diseases or health conditions.

As discussed in detail in the Applicant's response to the previous Office Action, the method in Lash first filters the patient members into a "homogenous sub-population" by disease or diagnosed condition prior to performing any analysis on the member patients in a managed care organization. See Lash ¶37. Thus, Lash fails to teach or suggest computing a utilization score for health plan members member having a plurality of disease or drug categories or a plurality of health conditions. In fact, Lash expressly teaches away from a utilization score applicable to a plurality of non-homogeneous patients, while the method of amended claim 1 is intended to provide a utilization score that takes into account a plurality of disease conditions.

Martin also fails to teach the method recited in amended claim 1. Martin teaches calculation of a patient's risk of developing a disease or condition. Martin ¶¶33, 48. This is in contrast to the present invention in which disease categories identified in a plan member's provider claims from the base period are used to calculate a burden of illness score for the base period that may be used to predict utilization of healthcare resources in the target period.

Additionally, the risk calculation in Martin is substantially different from that of the present invention as recited in amended claim 1. In Martin, risk is calculated based upon patient information collected by the provider. Martin at ¶ 46. Specifically, the risk value is a sum of (1) systemic risk, (2) exposure risk, and (3) experience data. Martin at ¶ 59. Systemic risk is the product of a standard risk value and the patient's health history information gathered from a patient during examination. Martin ¶¶45 and 60 and Table 2. The exposure and experience risk

values are calculated “for the six segments of the mouth.” Martin ¶ 61. Both are calculated as weighted sums of characteristics of each mouth segment observed by the dentist (e.g., periodontal inflammation, pocket depth, bone loss, and mobility). Martin ¶¶62-63.

Martin also discloses the use of a “totalnew” value that may be added to the risk value. Martin ¶65. The “totalnew” value is determined by defining one or more “positive occurrences,” which refer to “a patient having a designated disease or laboratory value, or taking a specified drug.” Martin at ¶ 114. Based upon the *frequency* of the positive occurrences in the patient’s diagnostic data, a patient may be assigned as high risk, meaning that the “totalnew” value is set at (+2), low risk, meaning that the “totalnew” value is set at (-2). Otherwise, the “totalnew” value is zero.

Thus, Martin does not teach or suggest the claimed method in which a plurality of disease categories are identified, weight values representing incremental cost associated with the presence of disease conditions and associated with each identified category are summed to generate a burden of illness score, and a utilization score is calculated as a function of the burden of illness score and one or more explanatory variables as required by amended claim 1.

Additionally, there would have been no motivation to combine the references as asserted by the Examiner. The Examiner states that the combination would be made to have “a means of arriving at a total risk value that takes (sic) both quantifies and takes into account all sub-factors (segments) which contribute to a risk factor as recited and illustrated in Martin (Figure 3 and Section [0114].” Office Action at p. 4. However, the risk assessment methodologies described in Lash and Martin have substantially different data inputs, data outputs, and functional purposes. For example, Lash uses as a data input patient data from a homogeneous population or sub-population of patients (Lash ¶38), while Martin uses as its data input patient health history information collected by the provider during a patient visit. Martin ¶46 (“the data used to compute a risk value is a subset of diagnostic information regularly collected by a healthcare provider”). Also, the output of Lash is high-cost risk scores for each patient within the homogeneous population. Lash at ¶ 39. In contrast, the Martin system determines the appropriateness of a proposed treatment plan. Martin at ¶ 50. Given the differences in the two

methodologies, it is not logical to conclude that one of skill in the art would have been motivated to modify the Lash methodology with portions of the Martin methodology.

The Examiner also asserts that Illiff teaches the claimed functions of storing a plurality of disease conditions, storing category weight data, and identifying each stored disease category present in the provide claims for a member. See Office Action at p. 4.

However, Illif describes an automated system for generating a patient diagnosis based upon the patient's symptoms. Specifically, Illif describes "a method of automated diagnosis or management of a medical condition" in which a plurality of symptom objects are associated with each disease object and each symptom object is assigned a weight. Particular disease objects may include a preferred weight of one or more preferred symptoms and an alternative weight for one or more alternative symptoms to enable automated diagnosis of a patient's condition or disease by matching symptom objects to disease objects. Illif at ¶ 010.

Illif does not teach or suggest the assignment of weights for disease categories, only the assignment of weights to symptom objects for the purpose of identifying an associated disease object, and does not teach or suggest the use of weight data relating to incremental cost of the presence of a disease category. Illif also does not teach or suggest the identification of each stored disease category in the provider claims for each member of a health plan, but instead teaches a method in which symptom objects for a patient are collected and associated with one or more disease objects based upon their associated weight to enable automated diagnosis of the patient.

Thus, Illif does not teach or suggest the claimed functions of (1) storing category weight data, wherein the category weight data comprises a weight value associated with each stored disease category, *wherein each weight value associated with a stored disease category represents an average incremental cost for a plan member associated with the presence of the associated stored disease category during the base period emphasis added*; or (2) identifying each stored disease category present in the plurality of provider claims for each of the plurality of health plan members.

Moreover, there would have been no motivation to combine the teachings of Illif with those of Lash and Martin as asserted by the Examiner because Illif describes a system for diagnosing a patient and does not address any risk assessment of a patient based upon the patient's previously determined diseases and conditions.

For these reasons, amended claim 1 is believed to be patentable over the combination of Lash, Illif and Martin.

Claims 4, 16, 17, 21-24, 27-29, 31-32, 37, 39, and 43 depend from amended claim 1 and are believed to be patentable over Lash, Illif and Martin for at least those reasons set forth above with reference to amended claim 1.

Additionally, claim 16 recites the step of determining the presence of a plurality of medical episodes in the provider claims and grouping the provider claims into one or more groups based on a medical episode. This functionality is also not described in either Lash or Martin. While the Examiner asserts that the use of episode groups is taught in Lash at ¶ 49, there is no description of any such grouping in the identified paragraph or anywhere else in Lash. Therefore, claim 16 is believed to be patentable over the asserted combination of references for this additional reason.

Claim 49, which recites a method using pharmacy claims and drug categories instead of provider claims and disease categories as recited in amended claim 1, is believed to be patentable over the asserted combination of references for reasons similar to those discussed above with reference to amended claim 1. As discussed above, none of the asserted references teaches or suggests the claimed method in which a plurality of drug categories are identified in a member's pharmacy claims, weight values representing incremental costs associated with each drug category are stored, the weight value for each identified drug category are summed to generate a burden of illness score, and a utilization score is calculated as a function of the burden of illness score and one or more explanatory variables as recited in amended claim 49.

Moreover, there would be no motivation to combine Lash, Illif and Martin as asserted by the Examiner given the differences in methodologies and purposes as discussed above with reference to amended claim 1.

Therefore, amended claim 49 is believed to be patentable over the asserted combination of Lash, Illif and Martin.

Claims 52, 53 and 66-67 depend from amended claim 49 and are believed to be patentable over the applied art for at least those reasons set forth above with respect to amended claim 49.

Additionally, claim 63 recites assigning the pharmacy claims into one or more groups based on a medical episode. This functionality is also not described in Lash, Illif or Martin. While the Examiner asserts that the use of episode groups is taught in Lash at ¶ 49, there is no description of any such grouping in the identified paragraph or anywhere else in Lash. Therefore, claim 63 is believed to be patentable over the asserted combination of references for this additional reason.

Claims 5-16, 25-26, 57-61 and 68 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash (U.S. Publication No. 2001/0020229 A1) as applied to claims 1 and 50, and further in view of Wong et al. (U.S. Patent No. 5,976,082). However, like Lash, Wong is practiced exclusively in the context of a single disease, i.e., congestive heart failure. Therefore, Wong does not remedy the deficiencies of Lash and Martin as discussed above with reference to amended claims 1 and 49, from which claims 5-16, 25-26, 57-61 and 68 respectively depend. Therefore, these claims are believed to be patentable over the art of record.

Claims 33-34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lash (U.S. Publication No. 2001/0020229) as applied to claim 1, and further in view of Lockwood (U.S. Patent No. 5,706,441). However, Lockwood discloses a method and apparatus for assessing performance of health-care providers that does not remedy the deficiencies of Lash and Martin as discussed above with reference to amended claim 1, from which claims 33-34 depend. Therefore, claims 33 and 34 are believed to be patentable over the art of record.

Conclusion

This application now stands in allowable form and reconsideration and allowance is respectfully requested.

This response is being submitted on or before April 25, 2008, 2007, making this a timely response. It is believed that no additional fees are due in connection with this filing. However, the Commissioner is authorized to charge any additional fees, including extension fees or other relief which may be required, or credit any overpayment and notify us of same, to Deposit Account No. 04-1420.

Respectfully submitted,

DORSEY & WHITNEY LLP
Customer Number 25763

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By: 
Adriana S. Luedke, Reg. No. 41,956
(612) 492-6858